July 7, 2006

VIA E-MAIL / REGULAR MAIL

Mr. Chris Salmi, Assistant Director
Air Quality Management
Division of Air Quality
New Jersey Department of Environmental Protection
P.O. Box 418
401 East State Street, 7th Floor
Trenton, NJ 08625-0418

Re: Comments on SIP White Papers
Chemistry Council of NJ

Dear Chris:

On behalf of our membership, you will find enclosed, comments on the various State Implementation Plan (SIP) "White Papers". We sincerely hope that the Department considers the comments when finalizing the changes to the SIP.

You and your staff should be lauded for your efforts regarding this matter. The process has been a very organized and transparent process and in the end we hope that the appropriate changes are made to the SIP which will improve the air quality in New Jersey without adding undue burden on industry.

We look forward to working with you on this matter in the coming months and we thank you for the opportunity to submit these comments. Please call with any questions or if you need additional information.

Sincerely,

Anthony Russo
Director of Regulatory Affairs
Chemistry Council of NJ

cc: CCNJ Membership (via e-mail)

Comments on NJDEP White Paper: SCS004C - Fluid Catalytic Cracking Unit (FCCU) Fluidized Coking Unit (FCU) in a Petroleum Refinery

Control Measure Summary from NJDEP White Paper	Emissions (tons/year) in NJ (from NJDEP White Paper)		Comments on NJDEP White Paper
2002 existing measure: Wet Gas Scrubber	**VOC** in 2002	134	NJDEP should reference the source(s) for the emission data so that comments can be provided. As presented, there is insufficient background information to assess the accuracy of the emission estimates.
	SO2 in 2002	3837	
	NOx in 2002	1675	
Candidate Measure 1: Selective Catalytic Reduction (SCR) for NOx control. **Emission Reductions:** 80 to 95% of NOx. **Control Cost:** < $2500 per ton of NOx removed **Timing of Implementation**: By end of 2009. **Implementation Area**: OTC **Candidate Measure 2:** LoTOx process for NOx control. **Emission Reductions**: 80 to 95% NOx **Control Cost:** $1700 to 2000 per ton of NOx removed. **Timing of Implementation:** By end of 2009 **Implementation Area:** OTC	**NOx** 2002 Base: Reduction: 2009 Remaining:	1675 - 520 1155	NJDEP provides insufficient information to evaluate the accuracy of the documented NOx reduction of 520 tons/yr. NJDEP should provide the basis for the reduction so that detailed comments can be provided. For example, NJDEP should, at a minimum, provide an analysis that identifies the existing source inventory, and associated emission, control measures currently utilized, and reductions that will be achieved through reductions achieved through consent decrees. In addition, NJDEP should provide cost calculations and references for the basis of the cost calculation. The basis must include the incremental cost of implementing the control technology considering the technologies currently utilized. Later in the White Paper, NJDEP states that LoTOx is a new technology for NOx emission reduction. As such, more information should be provided regarding this technology. Also, there are no sources of technical information cited for this White Paper, making it difficult to provide contructive comments regarding the technical and economic feasibility of the control measures proposed.
Candidate Measure 3: Latest DeSOx Additives in Regenerator and Improved efficiency of existing Wet Gas Scrubber for SOx control Emission Reductions: Overall 97 to 99.95% **Control Cost:** Overall <$1000 per ton of SOx removed. **Timing of Implementation:** By end of 2009 **Implementation Area:** OTC	**SO2** 2002 Base: Reduction: 2009 Remaining:	3837 -2837 1000	The SO2 reduction identified will likely be achieved through implementation of existing consent decrees. Nevertheless, NJDEP provides insufficient information to evaluate the accuracy of the documented SO2 reduction of 2837 tons/yr. NJDEP should provide the basis for the reduction so that detailed comments can be provided.
Candidate Measure 4: Optimum Temperature and oxygen content in Regenerator and Feed Quality Control for VOC and CO reduction at no extra cost.	**VOC** 2002 Base: Reduction: 2009 Remaining:	134 - 20 114	NJDEP provides insufficient information to evaluate the accuracy of the documented VOC reduction of 20 tons/yr. NJDEP should provide the basis for the reduction so that detailed comments can be provided. Additionally, NJDEP should further detail how feed quality control can be implemented with no extra cost to facilities.
Policy Recommendation of State/Workgroup Lead: Selective Catalytic Reduction (SCR) or LoTOx is recommended for NOx control. DeSOx catalyst addition and scrubber efficiency improvement are recommended for SOx control. **Brief Rationale for Recommended Strategy:** According to the current EPA Consent Decrees, facilities must achieve annual emission rates of 20 ppmvd NOx and 20 ppmvd SOx by the end of 2009. SCR has been successfully applied to refinery furnaces and FCCUs, and have high NOx control efficiency at a reasonable cost. LoTOx is a relatively new technology to be installed in FCCUs at two facilities in the US. The technology has high control efficiency for a reasonable cost. For SOx control, improvement in SOx reduction efficiency can be achieved by adding DeSOx additives in the regenerator and improving the efficiency of the scrubber by special chemical addition.			NJDEP's statement, "facilities must achieve annual emission rates of 20 ppmvd NOx and 20 ppmvd SOx by the end of 2009" is not accurate. The emission rates are incorrect and/or misleading. The consent decrees contain various emission limits with short-term and long-term averaging periods and various options for demonstrating compliance. Before any regulatory action, the NJDEP needs to provide detailed information on baseline emissions and control costs, and develop a method to adequately address site-specific considerations, including EPA enforcement actions and/or 114 consent decrees. This is especially important for control measures such as LoTOx, which NJDEP describes as a new technology that is yet to be installed, and is only scheduled to be installed at two facilities in the U.S.

Comments on NJDEP White Paper: SCS004A - Process Heaters/ Boilers in a Petroleum Refinery

Control Measure Summary from NJDEP White Paper	Emissions (tons/year) in NJ (from NJDEP White Paper)		Comments on NJDEP White Paper
2002 existing measure: Heaters and boilers burning liquid fuel are equipped with Low NOx burners. Most gas fired heaters and boilers in New Jersey are equipped with Ultra-Low NOx Burners.	**NOx** in 2002	3074	NJDEP should reference the source(s) for the NOx emission data so that comments can be provided. As presented, there is insufficient background information to assess the accuracy of the emission estimates.
Candidate Measure 1: Replace Low NOx burners with Ultra-Low NOx Burners (ULNB) and burn gas fuel only **Emission Reductions:** 75 to 90% of NOx. **Control Cost:** < $1000 per ton of NOx removed **Timing of Implementation**: Already in place in majority of the units. **Implementation Area**: OTC			The emission reductions of 75% to 90% of NOx identified by Candidate Measure 1, Replace Low NOx burners with Ultra-Low NOx Burners (ULNB) and burn gas fuel only, is inaccurate and misleading. The emission reduction identified can potentially be achieved by converting conventional burners or burners with no combustion controls to Ultra-Low NOx Burners, but not from converting Low-NOx burners to Ultra-Low-NOx Burners. As such, if the NJDEP did not consider that sources would be switching from Low-NOx burners and not an uncontrolled source, the control cost to implement the candidate measure may also be inaccurate.
Candidate Measure 2: Use Selective Catalytic Reduction (SCR) on boilers and heaters with heat input capacity of 250 MMBtu/hr or greater **Emission Reductions**: 85 to 90% NOx **Control Cost:** $2000 to 5000 per ton of NOx removed. **Timing of Implementation:** Already in place for some boilers and large process heaters. **Implementation Area:** OTC	**NOx** 2002 Base: Reduction: 2009 Remaining:	3074 - 573 2501	NJDEP provides insufficient information to evaluate the accuracy of the documented NOx reduction of 573 tons/yr. NJDEP should provide the basis for the reduction so that detailed comments can be provided. For example, NJDEP should, at a minimum, provide an analysis that identifies the existing source inventory, and associated emissions, control measures currently utilized, reductions that will be achieved through implementation of the recent revisions to Subchapter 19, and reductions achieved through Consent Decrees. In addition, NJDEP should provide cost calculations and references for the basis of the cost calculation.
Policy Recommendation of State/Workgroup Lead: Ultra-Low NOx Burners (ULNB) using gaseous fuel is recommended for all cases. SCR is recommended for large capacity heaters and boilers.			The candidate control measures presented in this white paper (SCS004A) are inconsistent with those presented in the Stationary Combustion Source Workgroup report, "A Collaborative Report Presenting Air Quality Strategies for Further Consideration by the State of New Jersey" dated October 31, 2005. The candidate measures evaluated in this white paper are not presented as one of the top five most promising control strategies.

Comments on NJDEP White Paper: SCS004A - Process Heaters/ Boilers in a Petroleum Refinery

Control Measure Summary from NJDEP White Paper	Emissions (tons/year) in NJ (from NJDEP White Paper)	Comments on NJDEP White Paper
Brief Rationale for Recommended Strategy: ULNB is a low cost technology successfully applied to boilers and process heaters of various designs. SCR can achieve high NOx removal at a reasonable cost. This technology has been successfully applied to boilers and large capacity process heaters.		The implementation of the Ultra-Low NOx burners and SCR on sources without combustion control can result in significant NOx reductions. However, the costs for implementing such a strategy can vary significantly based on site-specific considerations, such as existing control technology, baseline NOx emissions, utilization level, space constraints, and cost of any necessary retrofits. Before any regulatory action, the NJDEP needs to provide detailed information on baseline emissions and control costs, and develop a method to adequately address site-specific considerations. Additionally, NJDEP should consider, and document the impact of mandated future emission reductions that will result from existing agreements and regulations, such as N.J.A.C. Subchapter 18, N.J.A.C. Subchapter 19, PSD, ACO's and Consent Decrees.

Comments on NJDEP White Paper: SCS004B - Flares in a Petroleum Refinery

Control Measure Summary (from NJDEP White Paper)	Emissions (tons/year) in NJ (from NJDEP White Paper)		Comments on NJDEP White Paper
2002 existing measure: NSPS Subpart J	**VOC** in 2002	515	NJDEP should reference the source(s) for the emission data so that comments can be provided. As presented, there is insufficient background information to assess the accuracy of the emission estimates.
	SO2 in 2002	332	
	NOx in 2002	135	
Candidate Measure 1: Flare Gas Recovery System **Emission Reductions:** VOC and HAPs as well as NOx & SOx. Percent emission reductions depend upon percent of flare gas recovered. **Control Cost:** Capital cost of FGR system is $1.0 to $5.0 million. Operation & Maintenance Cost: $100,000 to $400, 000 per year. **Timing of Implementation**: By end of 2009. **Implementation Area**: OTC	**VOC** 2002 Base: Reduction: 2009 Remaining:	 515 - 186 329	NJDEP provides insufficient information to evaluate the accuracy of the documented VOC, NOx, and SOx reductions. NJDEP should provide the basis for the reductions so that detailed comments can be provided. NJDEP provides insufficient information to evaluate the accuracy of the documented control cost. As documented in the Stationary Combustion Source Workgroup report, "A Collaborative Report Presenting Air Quality Strategies for Further Consideration by the State of New Jersey" dated October 31, 2005, the SCS workgroup identified a capital cost for Flare Gas Recovery (FGR) of $15 to $20 million, not $1.0 to $5.0. As presented, there is insufficient background information to assess the accuracy of both the capital costs and operation and maintenance costs presented by NJDEP.
	NOx 2002 Base: Reduction: 2009 Remaining:	 135 - 48 87	
	SO2 2002 Base: Reduction: 2009 Remaining:	 332 -105 227	
Policy Recommendation of State/Workgroup Lead: Flare Gas Recovery (FGR) system is recommended to achieve reduction in VOC emissions and HAP emissions, as well as NOx & SOx emissions. **Brief Rationale for Recommended Strategy:** Beside major reduction in emissions, the FGR system allows cost savings because the recovered gases can be used as fuel or process feedstock. Cost savings due to recovery can be $300,000 per year to $1,000,000 per year; consequently, the annual cost can be low and the capital cost can be recovered in 3 to 7 years depending upon the facility and FGR system. The State of California has developed a specific rule for FGR system.			As a general comment, the candidate control measure presented in this white paper (SCS004B) is inconsistent with those presented in the Stationary Combustion Source Workgroup report, "A Collaborative Report Presenting Air Quality Strategies for Further Consideration by the State of New Jersey" dated October 31, 2005. As stated in the report, Candidate Measure 1, most refinery fuel gas is currently being recovered and any gas that may be sent to a flare is being addressed by EPA enforcement actions and/or Section 114 consent decrees. Adoption of rules and/or policies to require flare gas recovery systems is an unnecessary and misguided use of NJDEP's resources that will simply add an additional layer of requirements in an attempt to achieve what will already be accomplished through EPA enforcement actions and/or Section 114 consent decrees. If enacted, an additional layer of requirements will likely prove to be overly burdensome and problematic to comply with, when coupled with existing consent decrees.

Comments on NJDEP White Paper: VOC005 - Expanding Refinery Controls to Other Similar Facilities

Control Measure Summary from NJDEP White Paper	Comments on NJDEP White Paper
The concepts discussed in the workgroup included:	1) The Department does not clearly document the purpose and goals for considering the concepts outlined in the description. Is the goal to identify new or existing sources of fugitive emissions or both new and existing sources?
1) Expanded leak detection and repair to previously unidentified sources at existing LDAR affected facilities, such as heat exchangers, etc.	2) The Department references the October 1999 "Enforcement Alert" concerning LDAR at refineries, which asserts that "existing LDAR may be missing more leaks than anticipated, resulting in as much as 80 million pounds of emissions nationally per year." The Enforcement Alert also asserts that these emissions are being emitted each year because refinery leaks are not being identified properly and repaired promptly, as required by LDAR programs. The Department does not consider or address other mechanisms for improving leak detection monitoring reliability as documented in the enforcement alert under the section titled "Improving Leak Detection Monitoring Reliability". Several noted practices that are known to improve reliability include continuing eductation, use of a lower than required leak definition, and increased monitoring frequency.
2) Expand leak detection and repair to facilities that are currently not regulated by LDAR, that is to incorporate certain facilities and operations where fugitive emissions are potentially large emission sources.	
3) Another concept is to take a holistic approach to a facility by reviewing the entire site with infrared camera technology.	
4) Using infrared camera technology for an entire geographical area or specific sources of concern as an enforcement tool or as a public educational program.	
1) Expansion of LDAR to previously unidentified sources as existing LDAR facilities will require those facilities to expand their leak detection program. This will require minor regulatory changes.	The NJDEP does not adequately explain the implementation of this concept. The section does not define the types of sources to be included nor does it address what regulatory changes would be necessary.
2) Expansion of LDAR to facilities currently unregulated by LDAR will also require regulatory changes. Furthermore, NJDEP will need to identify exactly which sources should be included.	The NJDEP does not adequately explain the implementation of this concept. The section does not suggest examples of the types of sources to be regulated nor does it address what regulatory changes would be necessary.

Comments on NJDEP White Paper: VOC006 - Industrial Surface Coatings

Control Measures Summary from NJDEP White Paper: Apply EPA MACT standards for industrial surface coatings to all major sources, point sources and area sources	Comments on NJDEP White Paper
Effectiveness: Tabular comparison of estimated 2002 emissions and estimated 2009 emissions (tons/yr), estimated % reduction (high end and low end), estimated ton/day and ton/yr reduction (high end and low end)	Although the 2002 data is based on NJ information, the justification for using 2002 data, rather than more current data, is not provided. In addition, the basis for the high and low end per cent reduction estimates used to calculate the ton/day and ton/yr reduction estimates is a report prepared by Pechan and Associates, which is not readily available for review and comment.
Implementation:	No implementation schedule was provided.
Cost Effectiveness: OTC Control Measure Summary estimated the cost-effectiveness to be in the range of $908/ton to $8,632/ton	The cost-effectiveness values cited appear to be taken from the Attachment 1 summary of MACT standards and their environmental and economic impact. There is no rationale provided that supports the assumption that the cost of applying a MACT standard to a major HAP source would be the same as the cost to an area source. In fact, economic implications are one reason that EPA treats area sources differently than major sources. Although it is helpful to consult existing regulatory actions, such as the MACT standards development, for informational purposes, it is not appropriate to apply them to New Jersey sources without performing an environmental and economic analysis specific to New Jersey.

Comments on NJDEP White Paper: VOC010 - Architectural and Industrial Maintenance Coatings

Control Measure Summary from NJDEP White Paper: Amend N.J.A.C. 7:27-23 (architectural coatings) based on CARB survey data	Comments on NJDEP White Paper
Comparison of existing VOC limits in NJ, SCAQMD and proposed CARB limits:	The NJDEP provides no units of measure for the values provided within the table. When compared to N.J.A.C. 7:27-23, the values presented appear to be grams of volatile organic compounds (VOC) per Liter of coating.
Implementation: Reformulate products to meet new VOC limits, or stop selling in NJ, unless an exemption is met.	It is clear that CARB anticipates using the 2004 survey information to justify emissions, which is currently incomplete. However, it is unclear when implementation is anticipated and whether or not there will be a grace period. It is also unclear whether the NJDEP intends to keep the same exclusions in Subchapter 23 upon implementation of these "new" limits. It is also unclear what "new" limits the NJDEP is proposing (see next comment).
Effectiveness: Split the difference between the SCAQMD rules and the OTC model rule for most categories. For the top five categories - assumed 75% toward SCAQMD limits. Approximately 4 tons/day reduction of VOC in NJ.	The basis for the anticipated 4 ton/day reduction of VOC in NJ is not provided, nor are the baseline emissions based on the current Subchapter 23 limits. Further, it is very unclear what "new" limits the NJDEP is proposing. The White Paper provides a cryptic statement that, "the Ozone Transport Committee (OTC) split the difference between the SCAQMD rules and the existing OTC model rule VOC limits for most categories, except for the top five categories in sales, in which they went 75 percent of the way toward the SCAQMD limits." If the NJDEP has proposed limits they intend to implement, they should be clearly presented so affected sources can assess their potential impact and provide constructive comments.
Cost Effectiveness: SCAQMD estimated the cost-effectiveness to be in the range of $4,229/ton to $11,405/ton	The range is considerable and warrants a justification for the variance. The basis for the range in cost-effectiveness is not provided. However, the SCAQMD's 2003 Air Quality Management Plan, which is cited as a source for this White Paper, identifies a cost-effectiveness of $20,000 per ton in Appendix IV-A. The White Paper statement that the cost of compliance will be less for New Jersey because the one-time research and reformulation costs have already been incurred for products sold in California is not substantiated. The statement assumes that the market and products in New Jersey and California are identical, with no data provided to support that inference.

Comments on NJDEP White Paper: VOC011 - Adhesives and Sealants

Control Measure Summary from NJDEP White Paper: Enact VOC content limitations for application of solvent-based adhesives and sealants	Emissions (tons/yr) in New Jersey (from NJDEP White Paper)		Comments on NJDEP White Paper
2002 existing measures in New Jersey: No existing limitations for this specific category.	**VOC in 2002**	4,701 tons/yr	The NJDEP provides no references for the sources of this emissions data and therefore there is insufficient data to provide detailed comments. It is unclear whether the NJDEP is actually presenting emissions data from the California study referenced in Candidate Measure 1, not emissions data specific to New Jersey sources. It is also unclear why the White Paper references SO2 and NOx emissions, which are not associated with adhesives and sealants. As a general note, no sources of information are cited for this White Paper.
Candidate Measure 1: VOC content limits This measure has been enacted by various Air Pollution Control Districts in California from 1998 to 2001. Emission Reductions: 3,012 tpy Based on a 60% reduction in total emission for solvent-based materials (Assumes 75% of VOC emissions originate from solvent-based adhesives and sealants and that the remaining 25% of VOC in this category are mixed with water-based materials.) Estimated cost of control by reformulation: <$2,500/ton (based on 1999 dollars) Estimated cost of add-on control: range $10,000/ton - $100,000/ton. Timing of Implementation: Phased approach Implementation Area: State-wide	**VOC** **2002 Base:** **2009 Reduction:** **2009 Remaining:**	4,702 tpy -3,012 tpy 1,690 tpy	The source of the baseline level of VOC emissions as well as the apportioning of the VOC emissions between solvent-based and water-based materials is not provided. The estimated VOC emission reductions are derived from an out-of-state regulatory agency, and no information is presented to suggest that these values are representative for New Jersey sources. Further, the emissions reduction values do not appear to match the estimated 60% reduction for solvent-based materials. If the NJDEP is proposing new limits for the VOC content of adhesives and sealants, these limits should be clearly presented for comment. Until baseline VOC emission rates are established, and VOC emission reduction rates substantiated, any presentation of VOC emission reductions or cost effectiveness is premature and can not be substantiated. Further, it would be more helpful and more representative if the cost per ton information reflected year 2006 values, not cost factors from 7 years ago.
Policy Recommendation of State/Workgroup Lead: Revise N.J.A.C., Subchapters 16 and 24, to establish new standards. Consider exemptions for quart or gallon containers of retail contact cements, for materials used for specific applications (tire repairs, R&D, and solvent welding of medical devices), for low VOC materials (< 20 g/L), for low usage application (< 55 gal/yr) and for small sources (< 200 lb/yr). **Brief Rationale for Recommended Strategy:** Reduce VOC emissions, potentially increase water-based products, which may save $0.53/lb -			Although studies and regulatory actions conducted in California may be helpful sources of data for NJDEP, before any regulatory action, the NJDEP needs to provide detailed information on baseline VOC emissions and control costs specific to New Jersey sources. This process should be conducted with open participation from the regulated industry, who can offer their expertise in sealant and adhesive operations and emission estimating methodologies.

Comments on NJDEP White Paper: SCS001 - Electric Generating Peaking Units

Control Measure Summary from NJDEP White Paper: Revise Subchapter 19 emission limits for simple cycle turbines **2002/2009 existing measures:**	**Emissions (tons/yr) in New Jersey (from NJDEP White Paper)**		**Comments on NJDEP White Paper**
Peaking units are generally defined as electric generating units which operate only during the peak energy demand. Peaking units operate during the hot summer days and generally operate for less than 500 hours per year and less than 10 hours per day; or less than 10% annual capacity factor. Existing peaking units are mostly simple cycle frame or aeroderivative turbines. Most existing peaking units do not have any NOx control device.	NOx in 2002: SOx in 2002: PM in 2002:	4860 N/A N/A	The NJDEP should reference the source(s) for the NOx emission data so that comments can be provided. As presented, there is insufficient background information to assess the accuracy of the emission estimates.
Candidate measure 1: Install water injection technology (short term) Measure ID: Water Injection Emission Reductions: EPA estimates a 55% reduction in NOx emissions. Control Cost: Reductions can be achieved at a reasonable initial cost, but due to low annual capacity utilization, the incremental cost is approximately $44,000 per ton of mostly ozone day NOx reduction, equivalent to about $4400 per ton for calendar year reductions. Dividing by a factor of 10 approximates the cost effectiveness of continuous operation, assuming 36 days per year of ozone season operation. Note that annualized $/ton is not an appropriate cost effectiveness metric for peaking units used disproportionately on high ozone days. More appropriate metrics are the capital cost of control compared to the capital cost of the unit in $/MW, and the operating cost compared to the price of electricity in $/MW-hr. The cost of retrofitting a 25 MW turbine with water injection technology is less than $40,000 per MW compared to about $600,000 per MW cost of the turbine. The cost of operating water injection is about ___ $/MW-hr. During the peak energy demand, the market price of electricity is over $700 per MW-hr, compared to a base rate of $40-$70/MW-hr. Timing of Implementation: Assume full implementation by 2009. Implementation Area: Entire State.	NOx 2009 Reduction: 2009 Remaining: SO2 2009 Reduction: 2009 Remaining: PM 2009 Reduction: 2009 Remaining:	2673 2187 N/A N/A N/A N/A	In the Stationary Combustion Source Workgroup report, "A Collaborative Report Presenting Air Quality Strategies for Further Consideration by the State of New Jersey" dated October 31, 2005, this control measure is reported as controlling NOx emissions by 40%, not 55%. The NJDEP does not provide sufficient rationale to support its statement that, "Dividing by a factor of 10 approximates the cost effectiveness of continuous operation, assuming 36 days per year of ozone season operation." In fact, this factor seems arbitrary and without technical basis. The NJDEP should provide calculations or data to support the use of such a factor; otherwise, the cost of this control measure may be severely understated. If the factor of 10 is not supportable, the NJDEP must develop a viable means of determining the cost effectiveness of a control measure for an intermittently-operated unit. In fact, the Workgroup Report correctly points out that the cost data is based on one study at one facility, and that "the costs for implementing such a strategy can vary significantly based on a turbine's baseline NOx emissions, utilization level, and other site-specific factors such as existing DM water storage capacity." This white paper should also consider that the costs are site-specific. Any cost estimate should likewise consider that many turbines will be retired in lieu of implementing water injection, especially if the second phase of regulatory action is going to require replacement of the turbine with a DLN based simple cycle turbine. As stated in the Workgroup Report, peaking units serve a dual function. They provide electricity during peak demand, but the quick start capability of these peaking units also assists in grid stabilization. The cost estimate should incorporate the cost to the grid overall to overcome the loss of such units.
Candidate measure 2: Replace all existing aeroderivative turbines with newer Dry-Lo NOx (DLN) based simple cycle turbines Measure ID: DLN technology Emission Reductions: DLN technology based simple cycle turbine can represent over 90% reduction in NOx, compared to existing aero-derivative turbines. Control Cost: Total replacement cost. It ranges from $0.5-0.8 Million per MW. (Ref. Gas Turbine World – 2004) Timing of Implementation: Phase in from 2012 to 2015. Implementation Area: Entire state.	NOx 2009 Reduction: 2009 Remaining: SO2 2009 Reduction: 2009 Remaining: PM 2009 Reduction: 2009 Remaining:	4374 486 N/A N/A N/A N/A	In the Stationary Combustion Source Workgroup report, "A Collaborative Report Presenting Air Quality Strategies for Further Consideration by the State of New Jersey" dated October 31, 2005, this control measure is reported as controlling NOx emissions by 55%, not 90%. Further, the Workgroup did not identify this control measure as one of the top five most promising control measures, let alone recommending total implementation State-wide by 2012 to 2015. The NJDEP should follow the recommendations of the Workgroup. There is no evidence that NJDEP has thoroughly reviewed the cost and implementation issues associated with this control measure. Any further analysis should be done with open participation from the regulated community, such as the Workgroup, to accurately assess actual NOx emission reductions, costs, and implementation issues.
Policy Recommendation of State/Workgroup Lead: Adopt rules requiring water injection on all peaking units on short term basis (55% NOx reduction by 2009) and replacing all existing peaking units with DLN technology based simple cycle turbines or equivalent (>90% NOx reduction by 2015, phasing in from 2012 to 2015.			See the comment below. The Candidate NOx control measures presented in this white paper are inconsistent with those in the Workgroup Report. Any control measures that are identified should be performance-based, not technology forcing. Also, any changes to Subchapter 19 requirements should maintain an emissions averaging alternative to promote the operation of newer and cleaner units.
Brief Rationale for Recommended Strategy: Peaking units are generally the last units dispatched during periods of peak load when electrical demand is the highest. The quick start capability of these peaking units assists in grid stabilization and helps address local electrical demand. The operation of older simple cycle turbines is less efficient and, therefore, produces higher rates of pollutant emissions per unit of energy produced. Simple cycle peaking units operate primarily on hot summer days when exceedances of the ozone NAAQS also occur. On such days, these units may account for a substantial fraction of stationary combustion NOx emissions. Due to their significant potential for NOx reduction and corresponding effect on ozone non-attainment, this short term and long term strategy is strongly recommended. According to NJ's estimate, water injection has the promise of reducing 40 tons of NOx per ozone season day in NJ alone. Please note that NJ has over 40 simple cycle aeroderivative turbines, equipped with water injection technology. There are about 80 more simple cycle turbines, which are not equipped with water injection technology. A downside of this method of NOx reduction is the equivalent amount of higher CO emissions produced.			As a general comment, the Candidate NOx control measures presented in this white paper are inconsistent with those presented in the Stationary Combustion Source Workgroup report, "A Collaborative Report Presenting Air Quality Strategies for Further Consideration by the State of New Jersey" dated October 31, 2005. As stated in the report, Candidate Measure 2, complete replacement of all existing aeroderivative turbines DLN based simple cycle turbines, is not even presented as one of the top five most promising control strategies. The installation of water injection is considered a promising technology, with the caveat that the costs for implementing such a strategy can vary significantly based on a turbine's baseline NOx emissions, utilization level, and other site-specific factors such as existing DM water storage capacity. *Further, the Workgroup never recommended full implementation of Candidate Measure 1 by 2009 and Candidate Measure 2 by 2012 to 2015.* The Workgroup also presented other alternatives, in the category of "Operational Flexibility" that are no or low cost permitting methods the NJDEP could employ to promote the use of newer, more efficient turbines over older units. These permitting methods need to be included as viable emission reduction incentives.

Comments on NJDEP White Paper: VOC004 - Floating Roof Storage of Petroleum Products

Control Measure Summary from NJDEP White Paper	Emissions (tons/yr) in New Jersey (from NJDEP White Paper)		Comments on NJDEP White Paper
1. External floating roof tanks (XFRT) legs to be equipped with slotted guide poles, or leg socks 2. 95% control eff. for floating roof tank degassing (FRTDG) emissions 3. 95% control eff. for floating tank cleaning (FRTC) emissions			There are other mechanisms for controlling emissions from these tank activities. For example, a source should be given the option of limiting these events to a certain "de minimis" level, such as less than 5 tons per year. A preventative approach could be less costly and should be considered.
2002 existing measures in New Jersey: 2002 Total Uncontrolled VOC emissions (335.2 tpy): Currently, there are no control measures for VOC emissions from the following storage operations: external floating roof legs or sleeves, floating roof tank degassing and tank cleaning operations in New Jersey.	**VOC Uncontrolled:** 2002 XFRT: 2002 FRTDG: 2000 FRTC:	**335.2 tpy** 320 tpy (0.87 tpd/tank)/ 200 tanks 8.50 tpy/18 tanks 6.70 tpy/tank	The NJDEP provides no references for the sources of this emissions data and therefore there is insufficient data to provide detailed comments. However, as noted in subsequent comments, it appears that NJDEP is actually presenting emissions data from a California study, not emissions data specific to New Jersey sources.
Candidate measure 1: Install Slotted Guide Poles or Leg Socks Measure ID: SS-07 - Slotted Guide Poles Sleeves or Leg Socks1 This measure is part of the Bay Area Air Quality Management District (BAAQMD) requirement under Regulation 8, Rule 5 for external floating roof tanks (XFRTs) for petroleum refinery products, which was implemented in 2000 as a control measure for their one-hour ozone attainment SIP. Slotted guide poles sleeves, or leg socks, are designed to significantly reduce emissions from holes or gaps around slotted guide poles legs. Retrofit kits are readily available, and easy to install with no downtime for the tank. Emission Reductions: 0.87 tpd or 320 tpy Based on BAAQMD 200 product-specific XFRTs. Average emissions from organic storage tanks in the Bay Area were estimated to be 12.6 tons per day (4,599 tpy) in 1999. Emission reductions will probably be greater than 320 tpy for New Jersey, as our storage tanks are not product-specific. For example, NJEMS database lists 260 XFRTs storing refinery products with vapor pressure < 11.0 psia. Estimated cost of control: $400,000 total one-time cost to industry Cost effectiveness: $1250/ton of VOC emission reduced Timing of Implementation: 2009? Implementation Area: Entire State of New Jersey	VOC 2002 Base: 2009 Reduction: 2009 Remaining:	4,599 tpy -2,560 tpy 2,039 tpy	The baseline level of VOC emissions as well as the estimated VOC emission reductions are derived from an out-of-state regulatory agency, and no information is presented to suggest that these values are representative for New Jersey sources. Further, the emissions data presented appears to represent total emissions from storage tanks in the Bay Area, not just the emissions from slotted guide pole legs, which would likely be substantially less. The first step in evaluating potential control strategies for storage tanks is to establish a baseline VOC emission rate that is specific to New Jersey. Owners/operators of XFRTs are typically required to submit Emission Statements that would include the data needed to make reasonable assessments of baseline VOC emissions from slotted guide poles. This could be done by reviewing emission estimates already provided to the NJDEP by permitted sources, or by NJDEP creating a typical XFRT, or XFRTs, and then using the EPA TANKS computer software program to model emissions from fittings such as slotted guide poles. ***Until baseline VOC emissions are established, any presentation of VOC emission reductions or cost effectiveness is premature and can not be substantiated.***
Candidate measure 2: Control for Tank Degassing Measure ID: Vent headspace vapors to a control device (min. 95% control efficiency) Adopt similar performance standards as the May 19, 2005 proposed amendments of the San Joaquin Valley Air Pollution Control District Rule 4623 proposed changes for VOC storage tanks. The proposal is to install control device (w/min 95% eff) for floating roof-degassing emissions from refinery and petroleum by-products storage tanks. Floating roof degassing is when the roof is lowered to the tank bottom to evacuate all vapors. The Valley did not control degassed emissions until recently, when a study for Rule 4623 Amendments was conducted and found that it was economically feasible to control tank degassing emissions with min 95% efficiency for VOC. Emission Reductions: 8.1 tpy of VOC per 18 tanks. Estimated cost of control: The study found that almost half a ton of VOC per tank could be controlled for an average tank size of 2.765 million gals or 62,832 bbl. Actually: 944 lbs VOC/tank = (average volume of 62,832 bbl) * (EF of 0.015 lbs VOC/bbl). The annualized Baseline Emissions (with 18 tanks degassed annually) = 8.5 tpy. Cost effectiveness: From $2,288 to $4,290/ton of VOC emissions reduced per tank. Timing of Implementation: 2009? Implementation Area: Entire State of New Jersey	VOC 2002 Base: Annual Reduction: Remaining:	8.5 tpy -8.1 tpy 0.4 tpy	The NJDEP is proposing the adoption of regulations that are based on proposed regulations for another State. Has the NJDEP evaluated any comments that may have been received at proposal that suggest technical or economic limitations to implementation? Has a final rule been promulgated? Is it the same as the proposed rule? The NJDEP should follow the appropriate rule development process for establishing regulatory standards, and not adopt rules proposed in other States that perhaps have different Ozone attainment status, and thus require more rigorous controls to achieve attainment. The VOC emission data that is presented is from an out-of-state study. Has the NJDEP determined what types of tanks were in the study? Were they XFRTs, Internal floating roof tanks, domed external floating roof tanks, etc? Each type of tank has a different emission potential. Perhaps the study focused on the highest emitters, XFRTs. The study is only useful if the types of tanks studied are known and reasonably represent the tank population in New Jersey. No references are provided for the cost data, and it is likely linked to the San Joaquin Valley Air Pollution Control District and not specific to sources in New Jersey. Therefore, there is insufficient data to provide detailed comments on the cost analysis.
Candidate measure 3: Control for VOC storage tank cleaning emissions Measure ID: Vent cleaning vapors to a control device (min. 95% control efficiency) Emission Reductions: Uncontrolled total emissions from a single tank cleaning yield about 13,424 lbs (6.712 tons) VOC. The annual reduction will be 6.7 tpy * 95% = 6.4 tpy per tank. Since routine annual emissions from breathing and working losses are about 2,044 lbs (1.022 tpy VOC), then the total emissions from a single cleaning event yields more than 6 years of routine emissions. Control Cost: Cost analysis will be conducted for determination of NJ feasibility upon receipt of vendor cost data. Timing of Implementation: 2009? Implementation Area: Entire State of New Jersey	VOC 2002 Base: Annual Reduction: Remaining:	6.7 tpy - 6.4 tpy 0.3 tpy	The reference provided by the NJDEP for the data on VOC emissions from tank cleaning is not readily available for review. Floating roof tanks do not have working losses, so it is unclear on which the estimate of 1.022 tpy VOC from breathing and working losses is based. It seems counterintuitive that VOC emissions from one cleaning event would be 6 times the annual emissions from a tank. More data is needed to evaluate these baseline VOC and VOC emission reduction estimates.
Policy Recommendation of State/Workgroup Lead: Implementation of these three recommended measures will yield a minimum 95% reduction of VOC by 2009. **Brief Rationale for Recommended Strategy:** First, requiring leg socks on the floating roof legs will significantly reduce associated fugitive emissions. And second, there are no regulatory requirements for reporting emissions from storage tank degassing and cleaning operations under Sub 16, which regulates VOC emissions. Implementing these recommended changes as revisions of Sub 16 will help achieve the ozone attainment goal.			Requiring that sources *report* VOC emissions from tank degassing and cleaning operations will not necessarily help New Jersey achieve its ozone attainment goal. Before any regulatory action, the NJDEP needs to provide detailed information on baseline VOC emissions and control costs. This regulatory process should be in conjunction with the regulated industry, who can offer their expertise in storage tank operations and emission estimating methodologies.